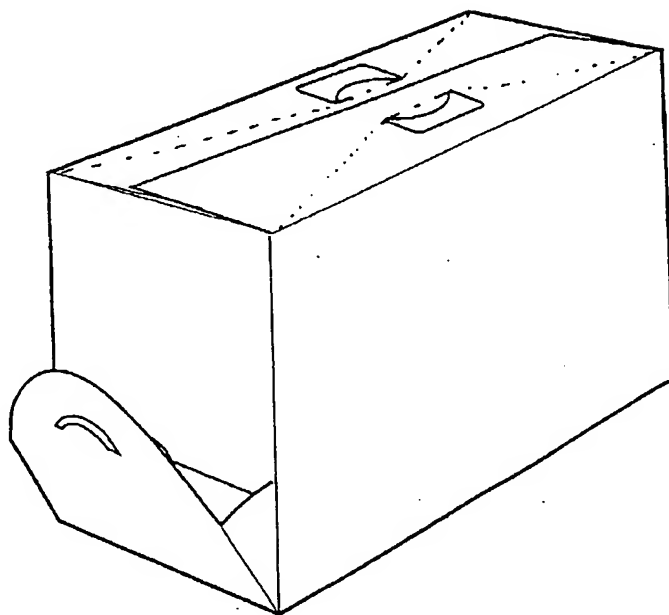


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(54) **CARTON**
(54) **CARTON**



(57) A carton for beverage containers includes rectangular side, top and bottom panels defining a substantially rectangular tubular body. A first rectangular end panel at one end of said tubular body closes same. A second rectangular end panel is located at the other end of said tubular body. At least one of the end panels comprises an upper partial panel connected at its side and top edges to the side and top panels of the tubular body, and a lower partial end panel, connected at its lower edge to the bottom panel of the tubular body.

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A B S T R A C T

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CARTON

Field of the Invention

The present invention relates to the field of packaging. In particular, the present invention provides a beverage can
5 carton with an opening structure thereon which permits ready access to cans from the end of the carton.

Background of the Invention

Conventionally, cans for beverages such as beer or soft
10 drinks are sold in packages or cartons containing a number of cans, usually 6, 12 or 24. The packages are made from paperboard, with a handle or carrying slot formed therein. Access to the cans in the package is usually through a die cut tear-open panel in the carton. While this form of package is efficient for transportation and sale of the product, it is not
15 a convenient package for storage in a refrigerator. This is because once it is opened, it cannot be replaced in the refrigerator easily without the danger of cans falling out of the package. Moreover, if the opened package is placed in a refrigerator, it must usually be removed to access a can, and
20 then replaced in the refrigerator - a somewhat cumbersome process, since, for instance a 12 pack full of ordinary cans weighs about four kilograms.

Therefore, it is common practice for consumers to remove cans from a carton and place them one at a time in a refrigerator. This is usually not an effective use of space, since a can is often quite a bit shorter than the space
5 available on a refrigerator shelf.

There is therefore a need for a packaging for beverage cans that will fit conveniently on the shelf of a refrigerator, and permit easy access to the contents thereof, without the need to remove the package every time it is desired to remove
10 a can. It is the object of the present invention to provide such a package.

In a broad aspect, then, the present invention relates to
(broad claims to be inserted here)

Brief Description of the Drawings

15 In drawings that illustrate the present invention by way of example:

Figure 1 is a perspective view of a 12 can carton according to a first embodiment of the present invention;

Figure 2 is a plan view of a two piece carton blank for
20 making the carton of Figure 1;

Figure 3 is a schematic view of the interior of the carton of Figure 1 or Figure 4, showing the arrangement of cans therein;

Figure 4 is a perspective view of a 12 can carton according to a second embodiment of the present invention;

Figure 5 is a plan view of a two piece carton blank for making the carton of Figure 4; and

5 Figures 6 - 13 are views similar to Figure 3, illustrating the application of the present invention to cartons holding 6, 8, 10, 15, 16, 18, 20 and 24 cans, respectively.

Detailed Description

10 Referring now to Figures 1, 2 and 3, carton is made from main body blank 2 and opening structure blank 3. Main body blank 2 comprises side panels 4 and 5 joined along fold lines 20 and 21 to end panel 6. Partial end panel 7 is joined to one of the side panels 4 along fold line 19. It will be noted that partial end panel 7 extends from the upper portion of side
15 panel 4.

Bottom panels 8 and 9 extend from the lowermost edges of side panels 4 and 5; along fold lines 23 and 27 respectively. Similarly, top panels 10 and 11 extend from the top edges of side panels 4 and 5 along fold lines 22 and 26.

20 Apertures 31, 32 are provided in the top panels 10, 11, and when aligned after erection of the carton, define a handle for the carton. Fold lines 29, 30 extend from the corners of handle apertures 31, 32 to the corners of the top panels, as

shown in Figures 1 and 2, to prevent uncontrolled deformation of the top panel when the handle is grasped and the carton and contents lifted.

5 Glue flaps 14 and 15 extend from end panel 6, along fold lines 24 and 25 located at the top and bottom edges respectively of end panel 6. Glue flaps 12 and 3 extend from partial end panel 7 along fold lines 17 and 18 located at the side and top edges respectively, of said partial end panel 7.

10 A glue flap 16, which also functions as a handle reinforcement layer, extends from an outer edge of top panel 11 (or 9).

 A slot 37 is formed in the partial end panel 7, to receive a tab 38 in the opening structure 3, as will be explained below.

15 Opening structure 3 comprises a partial end panel 33, from which arms 34 and 35 extend, along fold lines 41 and 42. A glue flap 44 extends from the lower edge of panel 33 along fold line 43. The upper portion 45 of panel 33 is generally arcuate, and extends above arms 34,35. A tab structure is cut
20 into upper portion 45, so that when upper portion 45 of the opening structure overlies the lower portion of partial end

panel 7, tab 38 will fit into slot 37, as will be explained below.

Each arm 34,35 has a straight lower surface, and an upper surface including a straight outer portion 40, a concave middle portion 38 and a convex inner portion 39.

To assemble the carton of Figure 1, first partial end panel 7 is folded over onto side panel 4 along fold line 19. Then, arm 34 of opening structure 3 is folded over onto panel 33, along fold line 42, and the opening structure 3, is lightly tacked to the main blank, with fold line 42 aligned with fold line 19, and arm 34 between panels 4 and 33. In order to tack the two pieces together, a small quantity of glue is applied on the exposed surface of partial panel 7, corresponding to the location of tab 38, and on the surface of panel 4, corresponding to the location of arm 34.

By the term "tacked" is meant that a small quantity of glue is used to hold two parts together sufficiently so that they do not come apart during handling, but may be easily separated by a user simply pulling them apart. Moreover, the glue used for simply tacking two portions together may be a glue with less affinity for paperboard which therefore forms a weaker bond than the glue normally used in the assembly of a carton.

Glue is then applied to the exposed surface of flap 12, and glue in an amount suitable to lightly tack arm 35 to the inner surface of side panel 5 is applied to the exposed surface of arm 35. Main body blank 2 is then folded over along fold line 21, and the inner surface of side panel 5 pressed against the glued surfaces of flap 12 and arm 35. This forms an essentially tubular structure with the side 45 and end 6, 7/33 panels forming a tube, which is then opened to define a hollow rectangular interior. Flaps 15 and 44 are then folded inwardly along fold lines 24 and 43, and glue applied to the outer surface thereof and to the outer surface of an edge of bottom panel 8 or 9, which is then also folded inwardly along fold line 23 or 27. The other bottom panel 8 or 9 is then folded inwardly along its fold line 23 or 27, to overlap with the first, along the glue applied thereto, and the entire bottom structure comprising flaps 44, 15 and panels 8, 9 is subjected to pressure, to form a substantially planar lower panel.

At this point, the substantially erected box can be filled with cans, in a configuration as shown in Figure 3, with the cans horizontally oriented in rows, and their ends against the side panels 4,5. As will be evident from Figures 6 - 12, the number of cans contained in a carton can be varied by simply varying the dimensions of side panels 45 and the height of end panel 6 and partial end panel 7. Opening structure 3, the

overall structure of the carton, and the method of assembly remain the same.

Alternatively, the carton may be loaded with cans before the glue flaps 44, 15 and bottom panels 8, 9 are folded in and glued. This permits the carton to be loaded from both sides of the open tubular structure.

After the carton is filled with the requisite number of cans, the top end glue flaps 13,14 have glue applied thereto, and are folded over along fold lines 18, 25. The inner surface of glue flap 16 has glue applied thereto, and it is folded over along fold line 28 against open panel 16, to reinforce same. The exposed surface of flap 16 or the other surface of the edge panel 10, then has glue applied to it, and the top panels 10, 11 are folded over along fold lines 22, 26 to overlap one another, so that the glued surface of either panel 10 or flap 16 serves to glue the overlapping panels together and provide a handle, defined by aligned handle apertures 31,32. The fully assembled and filled package can then be shipped for purchase by consumers.

In order to open the carton of Figure 1 to access the contents thereof, the consumer merely grasps the upper portion 45 of opening structure 3, and pries it gently from partial panel 7. This will also break the light bond of the tacking

between the arms 34,35 and the inside of the side panels, permitting the opening structure to hinge open along fold line 43. The arms 34, 35 are curved convexly in their upper portion to permit the opening device to pivot open. The arms each have
5 a concavely curved portion 38, the function of which is to permit a consumer to reach the top edge of a can without distorting the carton walls.

The outer portion 40 of each arm prevents the opening device from opening too far, thereby ensuring that it can be
10 easily closed again. When the opening structure is closed, tab 39 may be inserted, by finger pressure, into slot 37, to retain the opening structure in a closed position.

A second embodiment of the present invention is shown in Figures 4 and 5. In this embodiment, there is provided a main
15 body blank 80 and an opening structure blank 3, identical to the opening structure blank of Figure 1, and therefore similarly numbered.

Main body blank has side panels 46, 47 connected by fold lines 67, 69 to bottom panel 48 and by fold lines 64, 72 to top
20 panels 49, 50, which are provided with handle apertures 76, 77. A reinforcing glue flap 55 extends from a selected one of the top panels 49, along fold line 61. End flaps 51 and 52 extend from side panels 46, 47 along fold lines 65, 70. glue flaps

60, 58 and 59 extend from the bottom and top panels respectively along fold lines 68, 62 and 74.

Partial end panels 53, 54 extend from the other end of the side panels 46, 47 along fold lines 66, 71. Partial end panels 53, 54 are provided with slots 78, 79 which upon erection of the carton 80 of Figure 4, align to form a continuous slot for the insertion of tab 38 from opening structure 3. Glue flaps 56, 57 extend from top panels 49, 50, along fold lines 81, 75.

Opening structure 3 has already been described, above.

In order to erect the carton of Figure 4 the arms 34 of opening structure are first folded in along fold lines 41, 42. With the arms held in, the glue flap 44 is glued to the inside surface of bottom panel 48, adjacent partial end panels 53, 54. Then, reinforcing glue flap 55 is folded over onto top panel 49, along fold line 61, and glued to the inside surface of top panel 49. The other top panel 50 is then folded over onto side panel 47, and held down while the other side panel 46, with top panel 49 is folded over along fold line 67. Glue is then applied to the exposed surface of flap 55, and it is pressed against the exposed surface of top panel 50, to glue the blank together in a tube. This also aligns the handle apertures 76, 77.

The blank is then erected to a hollow rectangular tube, and the glue flaps 56, 57 from the top panels 49, 50 are folded in along fold lines 81, 75. The partial end panels 53, 54 are folded in along lines 66, 71, and glued to flaps 56, 57, and to each other where they overlap. Opening structure 3 is then folded in, and tacked to the outside of the end panel formed by glued-together partial end panels 53, 54. At this time, the arms 34, 35 are released, and they will tend to spring outwardly and lie flat against side panels 46, 47. At this stage, then, a tubular box with one closed end has been erected.

The box is then filled with beverage cans, to the configuration shown in Figure 3, and the open end is closed, in the manner of a conventional end load carton. That is, the glue flaps 58, 59, 60 are folded in along fold lines 62, 74, 68, glue is applied to them, and then end panels 51, 52 are folded in along fold lines 65, 70, glued where they overlapped, and pressed against the glue flaps and each other to seal the end of the carton.

The finished carton 80 is similar in outward appearance, handle design, and opening structure to that of Figure 1.

As will be noted from Figures 6 - 13, by varying the dimensions of the side end, top and bottom panels, cartons of

different sizes may be obtained, without departing from the present invention.

5 It is to be understood that the examples described above are not meant to limit the scope of the present invention. It is expected that numerous variants will be obvious to the person skilled in the field of packaging design without any departure from the spirit of the invention. The appended claims, properly construed, form the only limitation upon the scope of the invention.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY
OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A two piece blank for a carton for the storage of beverage
containers including:

5 i) a main body blank having a pair of side panels
 hingedly connected at side edges thereof to a full
 end panel along fold lines, top and bottom panels
 extending from upper and lower edge respectively of
 each side panel along fold lines, and an upper
10 partial end panel extending from the upper portion
 of a side edge of a selected one of said side panels
 along a fold line;

 ii) an opening structure blank comprising a lower
 partial end panel of substantially the same width as
15 said upper partial end panel, hingedly connected at
 the lower edge thereof to a flap, said opening
 structure blank being assemblable with said main
 body blank into a carton having an opening structure
 at one end thereof.

20 2. A two piece blank as claimed in claim 1, wherein said full
 end panel includes glue flaps extending from the upper and
 lower edges thereof along fold lines.

3. A two piece blank as claimed in claim 2, wherein said upper partial end panel includes a glue flap extending from the upper edge thereof along a fold line, and a glue flap extending from a side edge thereof along a fold line.

5 4. A two piece blank as claimed in claim 3, wherein said upper partial end panel has a slot formed therein adjacent the lower edge thereof, for accommodating a tab formed in said lower partial end panel.

10 5. A two piece blank as claimed in claim 4, wherein said opening structure blank includes arms hingedly connected at fold lines to side edges of said lower partial end panels, the length of each said arm exceeding the height thereof.

15 6. A two piece blank as claimed in claim 5, wherein each said arm includes an outwardly arcuate portion near said fold line, followed by an inwardly arcuate portion, whereby upon opening of said lower partial panel, the ends of said arms abut said upper partial panel.

7. A two piece blank for a carton for the storage of beverage containers including:

20 (a) a main body blank having a pair of side panels hingedly connected at lower edges thereof to a bottom panel along fold lines, top panels hingedly

connected to said side panel at the upper edges thereof along fold lines, full end panels hingedly connected to said side panels at first side edges thereof along fold lines, and upper partial end panels hingedly connected to said side panels at the upper portions of second side edges of said side panels along fold lines; and

- ii) an opening structure blank comprising a lower partial end panel of substantially the same width as said upper partial end panel, hingedly connected at the lower edge thereof to a flap, said opening structure blank being assemblable with said main body blank into a carton having an opening structure at one end thereof.

8. A two piece blank as claimed in claim 7, wherein said upper partial end panels have aligned slots formed therein, which form a slot when said upper end panels are overlapped and glued together, for accommodating a tab formed in said lower partial end panel.

9. A two piece blank as claimed in claim 8, wherein said upper partial end panels have aligned slots formed therein, which form a slot when said upper end panels are overlapped and glued together, for accommodating a tab formed in said lower partial end panel.

10. A two piece blank as claimed in claim 9, wherein each said arm includes an outwardly arcuate portion near said fold line, followed by an inwardly arcuate portion, whereby upon opening of said lower partial panel, the ends of said arms abut said upper partial panel.

11. A carton for beverage containers, including rectangular side, top and bottom panels defining a substantially rectangular tubular body, a first rectangular end panel at one end of said tubular body closing same, and a second rectangular end panel at the other end of said tubular body, at least one of said end panels comprising an upper partial panel connected at its side and top edges to the side and top panels of said tubular body, and a lower partial end panel, connected at its lower edge to the bottom panel of said tubular body.

12. A carton as claimed in claim 11, wherein said lower partial end panel, in an assembled state of said carton, overlaps said upper partial end panel.

13. A carton as claimed in claim 12, wherein said upper partial end panel, and said lower partial end panel, in the region in which they overlap, are provided with cooperating closure means, for maintaining said lower partial end panel against said upper partial end panel.

14. A carton as claimed in claim 13, wherein said cooperating closure means comprises a slot formed in a selected one of said partial end panels, and a cooperating tab formed in the other of said partial end panels.

5 15. A carton as claimed in claim 14, wherein said slot is formed in said upper partial end panel, and said tab is formed in said lower partial end panel.

10 16. A carton as claimed in any one of claims 11 - 15, wherein said lower partial end panel has arms extending from the side edges thereof into said carton, against the inside surface of said side panels.

15 17. A carton as claimed in claim 16, wherein said arms each include a convex arcuate portion adjacent the upper edge of said lower partial end panel, followed by a concave arcuate portion, followed by a straight portion that extends from said lower partial end panel a distance further than the gap between the lower edge of said upper partial end panel and the bottom panel of said carton, whereby said straight portion of said arms abuts the inner surface of said upper partial end panel upon opening of said lower partial end panel to access the
20 contents of said carton.

18. A carton as claimed in any one of claims 11 - 17, wherein a handle is formed in said top panel.

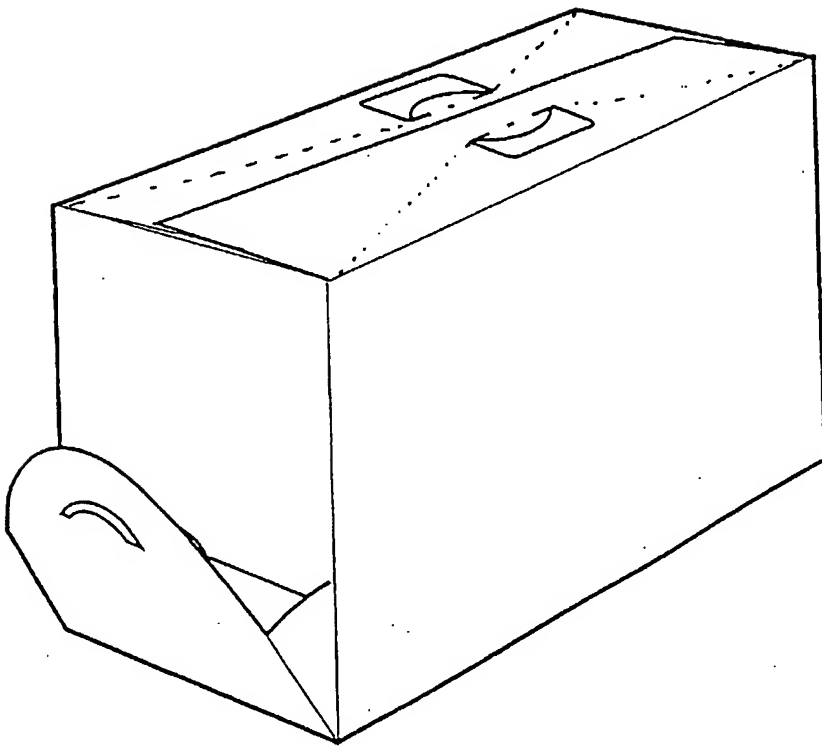


FIGURE 1

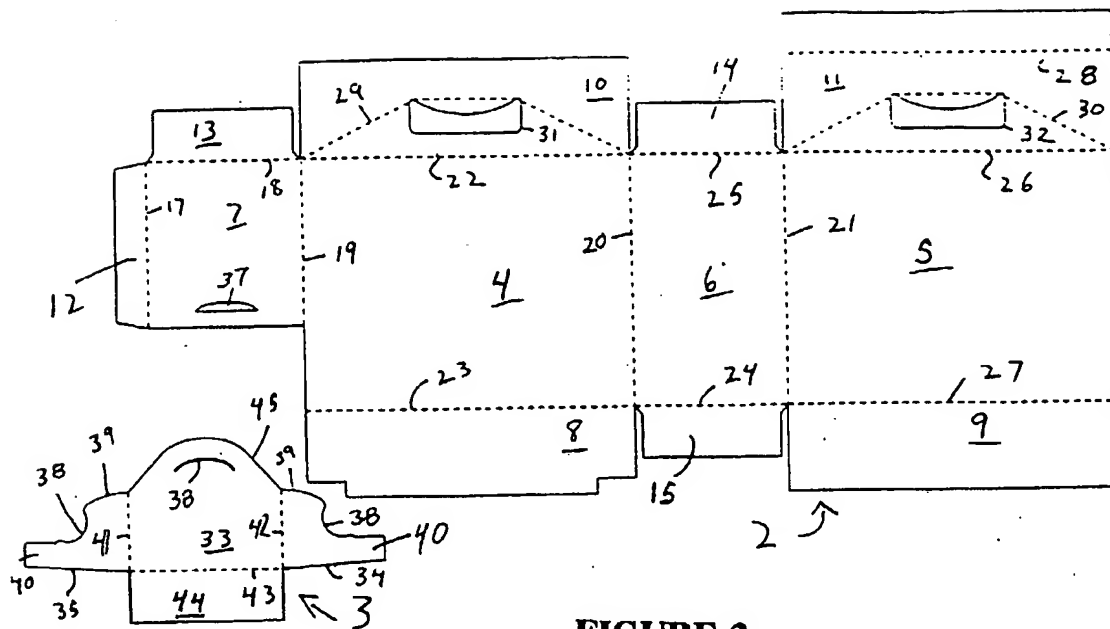


FIGURE 2

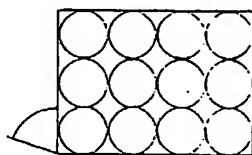
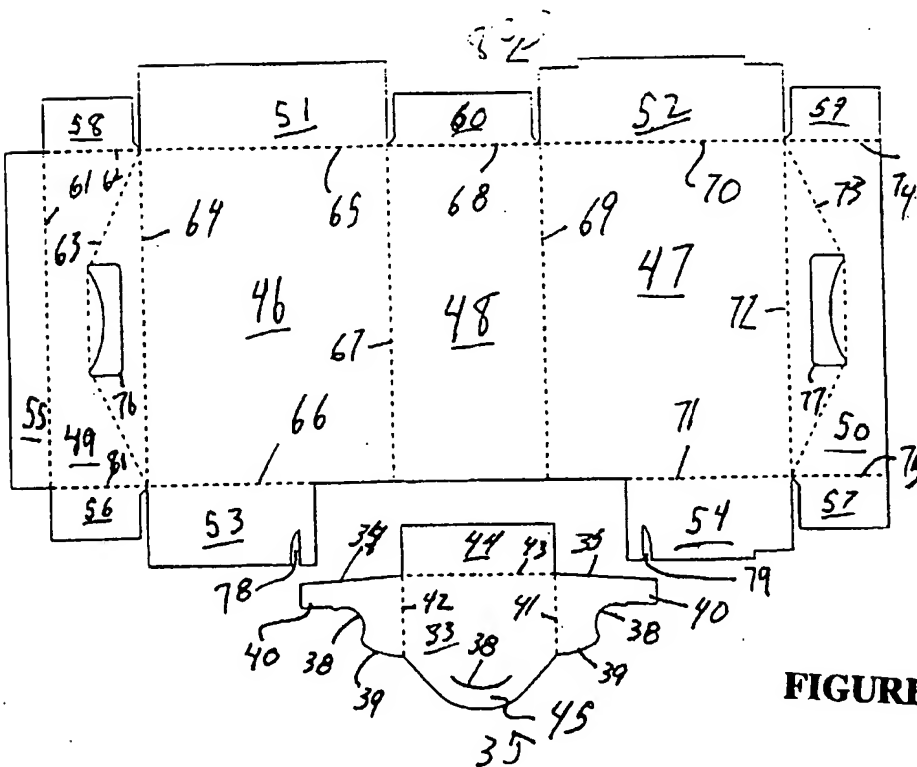
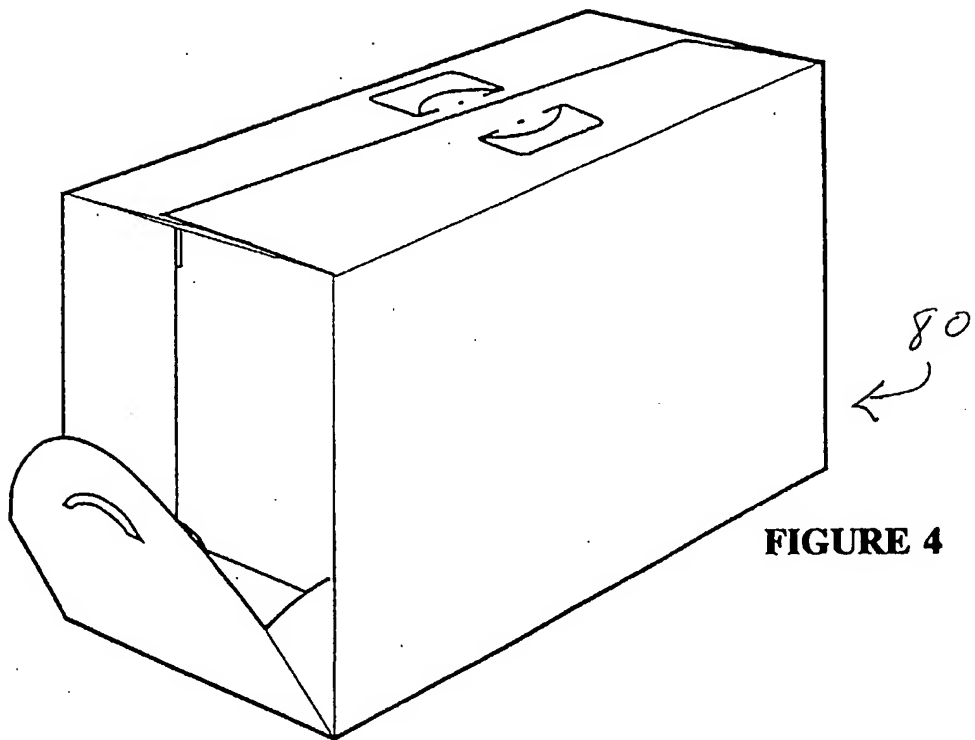


FIGURE 3



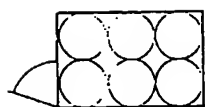


FIGURE 6

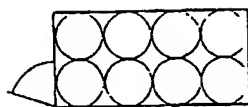


FIGURE 7

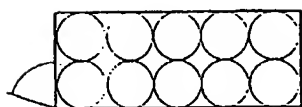


FIGURE 8

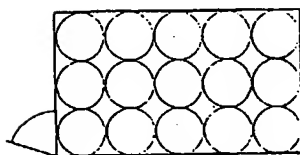


FIGURE 9

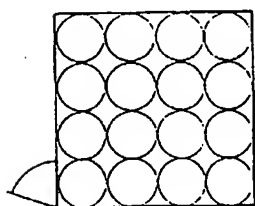


FIGURE 10

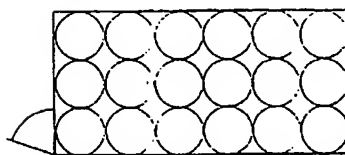


FIGURE 11

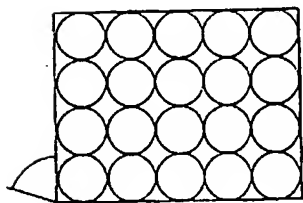


FIGURE 12

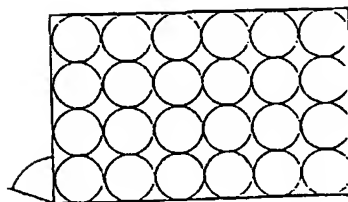


FIGURE 13

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